

REMARKS

Initially, Applicant would like to thank the Examiner for indicating the acceptance of the drawings filed with the present application on October 6, 2006. Applicant would also like to thank the Examiner for acknowledging Applicant's claim for foreign priority under 35 U.S.C. §119, as well as for confirming receipt of certified copy of the document upon which the claim for foreign priority is based. Since the present application is a national stage of PCT/JP2006/302189, Applicant assumes that the certified copy of the foreign priority document has been forwarded to the United States Patent and Trademark Office by the International Bureau.

Applicant would also like to thank the Examiner for acknowledging consideration of the documents listed on the Form PTO-1449s submitted with the Information Disclosure Statements filed on January 8, 2007, and August 25, 2008. Further, Applicant would like to thank the Examiner for indicating that claims 3-11 and 15-16 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and that claims 6-11 and 15-16 will be allowed when claim 5 is rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Upon entry of the present amendment, claims 1-7 and 10-16 will have been amended. Independent claim 1 will have been amended to incorporate some of the limitations of dependent claim 12. The amendment to independent claim 1 is supported by, for example, paragraph [0102] of the specification as filed (paragraph [0122] of the published specification). Claims 3, 4 and 5 will have been amended to be rewritten in independent form including all of the limitations of the original base claim 1. Claim 15 will have also been amended to correct a minor typographical error. The amendment to claim 15 is supported by, for example, paragraphs

[0141] and [0144] of the specification as filed (paragraphs [0161] and [0164] of the published specification). In addition, where not specifically noted, claims 1-7 and 10-16 will also have been amended solely for purposes of consistency and clarity, and should not be considered to have been made for purposes related to the patentability of the present application. No new matter will have been entered by the above-made amendments. Accordingly, claims 1-16 are pending for consideration by the Examiner.

In view of the herein contained amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding objections and rejections set forth in the above-mentioned Official Action. Such action is now believed to be appropriate and proper.

Objection to the Specification

The Examiner has objected to the title as not being descriptive. Without agreeing to the propriety of the Examiner's objection and solely to expedite the examination process, Applicant has amended the title to be more descriptive. Accordingly, the objection is now believed to be moot and should be withdrawn.

Objection to the Claims

The Examiner has objected to claim 12 for informalities. Without agreeing to the propriety of the Examiner's objections and solely to expedite the examination process, Applicant has amended the above claim to eliminate any possible basis for the objection. Accordingly, the objection is believed to now be moot and should be withdrawn.

Anticipation Rejections under 35 USC §102(b)

In the Official Action, claims 1, 2, and 12-14 were rejected under 35 U.S.C. §102(b) as being anticipated by ONO et al. (U.S. Pat. No. 5,971,538). Applicant respectfully traverses the outstanding rejection of the claims.

Applicant notes that for an anticipation rejection under §102 to be proper, a single reference must disclose each and every element recited in a claim. Accordingly, Applicant respectfully submits that ONO fails to disclose each and every element of at least amended independent claim 1.

In this regard, independent claim 1, as amended, generally recites a ink jet head for providing stable ink discharge, *inter alia*, a pressure application section that applies pressure to ink and at least includes a diaphragm that moves relative to a nozzle plate, wherein the diaphragm moves in a direction approximately parallel to a discharge direction of an ink drop discharged from the nozzle.

Applicant respectfully submits that ONO fails to disclose (let alone render obvious) the claimed pressure application section including a diaphragm that moves relative to a nozzle plate, wherein the diaphragm moves in a direction approximately parallel to a discharge direction of an ink drop discharged from the nozzle, as recited in Applicant's amended independent claim 1.

In this regard, in the Official Action, the Examiner asserts that ONO discloses that "said pressure application section (41) comprises: a diaphragm that moves relative to said nozzle plate (42)...and a direction of relative movement of said diaphragm is a direction approximately parallel to a discharge direction of an ink drop from said nozzle (col 5, lns 45-65)..." See the Official Action page 3, lines 12-16. That is, the Examiner asserts that a piezoelectric unit 41 corresponds to the pressure application section and the diaphragm, as generally recited.

Applicant submits that ONO discloses that piezoelectric unit 41 is secured to flat surface 40a of ink chamber plate 40 such that displacement portions 41a confront grooves 40c of ink chamber plate 40. See e.g. ONO FIG. 6. Further, ONO discloses that, when a related displacement portion 41a is moved in response to a signal from a drive circuit, ink from a related

one of ink chambers 45 of an ink chamber plate 40 is discharged from a related one of nozzles 42a of the nozzle plate 42 by the movement of the related displacement portion 41a. *See e.g.*, col 5, lines 45-65.

However, in the disclosure of ONO, it is not clear whether or not the displacement portions 41a form part of piezoelectric unit 41 or are considered as separate members from piezoelectric unit 41. In the case where the displacement portions 41a form part of the piezoelectric unit 41, it follows that ONO fails to disclose a diaphragm.

Further, even if the displacement portions 41a could be considered to form the diaphragm (which is a separate member from piezoelectric unit 41), since ONO's FIG. 6 shows that the displacement portions 41a of the piezoelectric unit 41 cover grooves 40c, the direction in which the displacement portions 41a vibrate is the thickness direction of piezoelectric unit 41. That is, the displacement portions 41a vibrate in the direction X1-X2, which is orthogonal to the discharge direction of the ink (*i.e.*, Z1-Z2), and not parallel to the discharge direction of the ink discharged from the nozzles 42a. *See e.g.*, FIG. 1 and FIG. 5B.

In other words, Applicant respectfully submits that ONO fails to mention a diaphragm, let alone disclose a diaphragm that moves in a direction approximately parallel to a discharge direction of an ink drop discharged from the nozzle, as generally recited in amended independent claim 1. At best, it appears that the displacement portions 41a of the piezoelectric unit 41 merely move along sides of grooves 40c of the ink chamber plate 40 in the X1-X2 direction. In this regard, there appears to be no disclosure of a diaphragm to aid in further discharging of the ink, let alone a diaphragm that moves parallel (or with) the discharge direction of an ink drop.

In contrast, according to a non-limiting aspect of the present invention the ink-jet head is specifically configured to include a diaphragm that moves generally parallel to a discharge

direction of an ink drop so as to advantageously minimize any variation of the rectilinearity of the ink drop even if the intensity of the pressure applied to the ink is changed. *See e.g.*, the Specification at paragraph [0104]. Therefore, Applicant respectfully submits that the disclosure of ONO fails to disclose each and every feature of the claimed invention, and respectfully requests withdrawal of the 35 U.S.C. §102(b) rejection of independent claim 1, as well as dependent claims 2, and 12-14.

Thus, for each of the above-noted reasons and certainly for all of the above-noted reasons, it is respectfully submitted that the Examiner's rejections are inappropriate and improper. Accordingly, Applicant respectfully requests reconsideration and withdrawal of each of the outstanding anticipation rejections together with an indication of the allowability of all of the pending claims. Such action is respectfully requested and is now believe to be appropriate and proper.

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

In response to the Statement of Reasons for the Indication of Allowable Subject Matter, included in the official communication mailed by the U.S. Patent and Trademark Office on August 3, 2009, Applicant wishes to clarify the record with respect to the basis for patentability of the indicated allowable claims in the present application. In this regard, while Applicant does not disagree with the Examiner's indications that certain identified features are not disclosed by the prior art references, as noted by the Examiner, Applicant further wishes to clarify that independent claims 3, 4 and 5 in the present application each recite a particular combination of features, and the basis for patentability of these independent claims is further based on the particular totality of the features recited therein. The dependent claims 6-11, 15 and 16 set forth additional bases for their patentability in accordance with their recited limitations as well as in accordance with the particular limitations of the respective base claims.

SUMMARY AND CONCLUSION

Applicant asserts that the present application is in condition for allowance, and respectfully requests an indication to that effect. Applicant has argued the allowability of the rejected claims and pointed out deficiencies of the applied references, as well as rewritten indicated allowable claims 3, 4 and 5 in independent form including their respective base claim. Accordingly, reconsideration of the outstanding Official Action and allowance of the present application and all the claims therein are respectfully requested and is now believed to be appropriate.

Applicant notes that this amendment is being made to advance prosecution of the application to allowance, and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All other amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

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